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ON THE EVOLUTION OF PHARMACOLOGY.

By M. I. WILBERT.

Pharmacology, as now being developed, has been defined as "The scientific investigation of the action of substances, other than foods, when administered to the living organism."

This scientific or careful study of the action of drugs and poisons, in the animal body, is a development of comparatively recent times. Less than a century ago, Magendie, following up some suggestions made by his great master, Bichat, laid the foundation stone of the science of drug action, and, incidentally, pointed out the possible application of the first substance to be investigated pharmacologically—strychnine. The substance experimented with, by Magendie, was upas, a Java arrow poison, which later was found to contain the same active principle as is found in *nux vomica*.

The pharmacologic studies instituted by Magendie were continued by his pupil Claude Bernard, who met with considerable success in demonstrating the action of various substances used in medicine.

From the days of Magendie and Bernard to the present time the science of pharmacology has attracted a number of investigators, who in turn have enriched medicine by their research and study. The master mind in the development of this science was, no doubt, Oswald Schmiedeberg, the director of the Pharmacological Institute at the University of Strassburg and the generally acknowledged founder of the modern systematic study of active medicaments in connection with the animal organism.

The general importance of the study of pharmacology is well illustrated by the fact that for many years practically all successful, or at least all permanently valuable, drugs have come to us by way of the pharmacological laboratory, where their value, use, and limitations were determined before they were administered, even experimentally, to human beings.

The first of the drugs to be introduced in this way was hydrated chloral, which was experimentally tried out by Liebreich, professor of pharmacology in the University of Berlin, some forty years ago. Among other valuable additions to the armamentarium of the physician it will suffice to enumerate antipyrine, phenacetin, sulphonal, trional, and cocaine as being indicative of the nature and value of the materials thus introduced.

In our own country the introduction of pharmacology as a distinct study in connection with the course in medicine dates back only to 1891, when Dr. John J. Abel was elected to the newly created chair of pharmacology in the University of Michigan, at Ann Arbor.

At the organization of the medical school in connection with Johns Hopkins University Dr. Abel was selected to fill the chair of pharmacology in that institution and Dr. Arthur R. Cushny succeeded to the same chair in the University of Michigan.

While as yet we have nothing that even approximates the Imperial Health Office in Berlin, the Royal Institute for Experimental Therapeutics at Frankfort-on-the-Main, or the pharmacological institutes connected with the more influential universities in Germany, we are, nevertheless, to be congratulated in having the foundation of the science of pharmacology, in this country, laid strong and deep by two such eminently practical and thoroughly scientific men as Abel and Cushny.

Pharmacologic investigation in connection with the several scientific laboratories of the United States Government dates back only a comparatively few years. The first work of this kind was instituted in connection with the Bureau of Plant Industry, in 1901, and has been continued uninterruptedly since 1904, when Dr. A. C. Crawford was regularly appointed pharmacologist in the bureau. A similar line of work was instituted in the Bureau of Animal Industry, in 1908, and in the latter portion of the same year Dr. Salant was appointed pharmacologist in the Bureau of Chemistry of the Agricultural Department, so that, at the present time, that department has no less than three bureaus in which studies along pharma-

cologic lines are being carried on. So far these investigations appear to have been devoted largely to contaminations in food products, stock feeds, and the economic development of the animal industry in agriculture. The work in connection with these several bureaus, as indicated by the results already obtained in connection with "loco weeds" and the poisonous nature of the several oil cake residues used as stock feeds, promises to be of inestimable economic value.

The first effort to develop a similar line of work, bearing more directly on the health and well-being of the human kind, was evidenced by an Act approved July 1, 1902, entitled: "An Act to increase the efficiency and change the name of the United States Marine-Hospital Service." This Act provides for the creation of a Division of Pharmacology in the Hygienic Laboratory of the Public Health and Marine-Hospital Service.

Owing to lack of accommodations active work in connection with this Division was not inaugurated until March, 1904, when Dr. Reid Hunt was appointed chief of the Division of Pharmacology, Hygienic Laboratory, and entered upon his duties.

While this Division is, primarily, engaged in routine work for the several branches of the Public Health and Marine-Hospital Service, it has even now amply demonstrated the possibilities inherent in a Division of this kind. Apart from the routine work, which is time-consuming without making for publicity, the Division of Pharmacology, Hygienic Laboratory, has contributed materially to our knowledge of the action of alcohol, adrenalin, and the related compounds, thyroid, and a number of other more or less important drugs and chemicals.

The Division also assisted in developing the American standard for antidiphtheritic serum, the control of which, with allied products, is vested in the Hygienic Laboratory of the Public Health and Marine-Hospital Service.¹ Important as the control of sera and various biologic products undoubtedly is it would not be difficult to show that from the point of usefulness it is secondary in importance to the need for developing reliable and readily applied standards and tests for some of the more potent and medicinally more valuable drugs in our *materia medica*.

While there is scarcely a single drug the uses and limitations of which have been satisfactorily defined, and while the pharmacologic study of our present *materia medica* will no doubt require the con-

certed efforts of pharmacologists for many years to come, there are certain problems that merit immediate and thorough investigation.

Among the drugs, or rather classes of drugs, that require exhaustive study to clear up a number of mooted points it will suffice to point to the anæsthetics, the hypnotics, and the mydriatics, to say nothing of such even more difficult problems as are offered by substances like thyroid, the suprarenal gland and its active principle, ergot, strophanthus, and digitalis. The latter drug is a particularly good illustration of the need for developing a satisfactory method for controlling its preparations.

The work that has been done with digitalis, and in the aggregate it probably exceeds the work done on any other drug, with the possible exception of the active principle of the suprarenal gland, all goes to demonstrate the need for conscientious and active control.

Gottlieb, Focke, and Löwe have all called repeated attention to the variable nature of preparations of digitalis. Cushny asserts that he found the so-called active principles of digitalis to vary even more than the galenical preparations, and Dixon has no hesitancy in asserting that "Many hundreds of patients die annually from digitalis and allies not possessing the virtues which are required of them."

With this evidence before us it need not surprise us to learn that no less an authority than Fränkel, the noted German clinician, suggests that the government should provide laboratories in which the physician can have the digitalis preparations which he uses in his practice physiologically tested.

In this connection we must remember that a preparation once tested is still subject to decomposition and that decomposition products of digitalis are particularly toxic, more so even than the active principles themselves, without, however, the regulating influence on the heart. Bearing in mind then that inferior or decomposed digitalis preparations may shorten life either because of their inefficiency or because of the toxic principles that have been developed, and remembering the all-important function of digitalis and its wide-spread use in certain cases of circulatory disturbance, there are but few medical men at least who will not agree with Fränkel that some method of guaranteeing the activity and the usefulness of the preparations of digitalis, at the time they are to be used, is highly desirable.

How this is to be done remains a problem for the future to solve.

It may be that, as is now done with sera, a time limitation may be feasible, or it may be that the future pharmacy will in reality be a pharmacologic laboratory where the action as well as the nature of a medicament will be determined before it is dispensed. At all events it will be criminal to continue in our present slipshod manner of dispensing medicaments of unknown composition or unknown uses when we have at our command the possibility of developing a science that will insure a true indication and a safe guide in the administration of active medicaments.

DRUG STORE CONVENIENCES.

BY E. FULLERTON COOK.

A NEW PASTE-POT.—The paste-pot of the average drug store is the source of much annoyance; it is frequently unsightly and the paste in poor condition, and if it is to be kept otherwise it requires daily attention. The paste is usually homemade, either from flour, starch, or dextrin, with small amounts of alum, aluminum sulphate, and preservatives, and there are an abundance of good formulas available. But the practical difficulty arises when the paste begins to dry on the surface, about the edges of the pot, and on the brush, and then small, hard particles get into the paste as it is spread.

The shape and style of the pot here suggested are not new. A few years ago a glass pot, similar in shape, was offered for sale by a large sundry house, but the metal top, which screwed on, was made of sheet metal, nickel plated, and in a few weeks began to rust, discoloring the paste and continually sprinkling small particles of rust on the surface, and an earlier experience with a similar pot had been that hot paste, poured into the glass container, caused it to break.

This inconvenience and the inability to find on the market anything meeting the demand have brought about the devising of the pot here described which has proven entirely satisfactory, after four months of use.

A quart, pure aluminum kettle, having an aluminum lid which slipped on but fitted tightly, the lid and the body of the kettle being each drawn from one piece of sheet aluminum and very strong,

was bought from a department store for seventy cents. The handle was removed and a round hole, one and one-half inches in diameter, punched in the centre of the lid, after which the top was depressed towards the centre by using considerable pressure.

The pot is now complete but a brush must be provided. It was impossible to find a suitable brush which was not bound in a metal which would rust, but selecting one which would readily pass through the opening in the lid, the metal was first shellacked, then wrapped closely with twine from the bristle to the wood, and this in turn was heavily shellacked with two or more coats. A disk of rubber, about one-fourth inch thick, was now cut from a rubber cork, two inches in diameter, a small hole punched in the centre, and the brush handle passed through this. When the brush is standing in the pot the rubber disk effectually excludes air and prevents the paste from drying, and when the brush is to be used the excess of paste may be wiped off as it is withdrawn.

The advantages of this pot are as follows: (1) As long as well-made paste is in the pot it is ready for use; it will not dry; (2) the pot does not rust nor discolor the paste and acids will not attack it, although alkali will cause the metal to darken; (3) hot paste may be poured into the pot without danger of breaking or the paste may even be cooked in the kettle; (4) the brush may be freed from an excess of paste as it is withdrawn and the excess drops back into the pot.

Its convenience and satisfaction far outweigh its original cost which was as follows: pot, 70 cents; punching, 10 cents; brush, 15 cents; shellac, 5 cents; rubber cork, 25 cents; total, \$1.25.

A CONTAINER FOR PURIFIED COTTON.—The necessity for having purified cotton available in the laboratory and yet protected from dust has developed the apparatus here described.

A box was made, from wood, of a size suitable to hold a pound roll of purified cotton. The lid was hinged and slots cut in each end so that a stove-bolt which was to serve as the axis of the cotton roll could be slipped into place.

It was found necessary to devise means of preventing the cotton from unrolling by its own weight or when a bunch was pulled from it, and the first step was therefore to fasten the end of the roll of cotton to the bolt. This was accomplished by fastening a long, thin piece of steel at one end of the bolt, slipping the cotton under this, and then clamping it at the other end by means of a ring which

slips over it. The cotton is then rolled tightly on the bolt, from the original roll, taking care to avoid exposure or soiling, and is now slipped into the box. Here, however, a ratchet device has been arranged which prevents the cotton from unrolling unless a button on the outside is pressed.

It is believed that such an appliance, if obtainable, would be a valuable addition to the equipment of any prescription department, and it can be readily made by any one with slight mechanical ability.

This is an opportunity to also call your attention to a line of white enamelled ware, sold in the house-goods departments of many stores, which may be applied with great advantage to many drug store laboratory operations. We have used them for water-baths for several years. The plates admirably adapt themselves to covers for funnels and percolators. The bowls of many sizes are inexpensive and strong and clean, and may be used in innumerable ways: in making ointments; in moistening drugs for percolation, and, in fact, for almost every purpose for which a porcelain dish is required.

PROGRESS IN PHARMACY.

A QUARTERLY REVIEW OF SOME OF THE MORE INTERESTING
LITERATURE RELATING TO PHARMACY.

By M. I. WILBERT, Washington, D. C.

Before this number of the AMERICAN JOURNAL OF PHARMACY reaches its readers the American Pharmaceutical Association will have concluded its annual sessions, which are to be held this year in the city of Los Angeles near the far-off coast of the broad Pacific, from the 16th to the 20th of August.

For such of the pharmacists of this country as are able to attend, this meeting will no doubt prove to be one of unusual interest and profit. All of the several sections have provided excellent programs and the trip across the continent is itself an event to be looked forward to as a source of profit as well as pleasure.

Scarcely less interesting will be the meeting of the National Association of Retail Druggists which is to be held in the city of Louisville, Ky., the week of September 6. Many of the members of

that organization are looking forward to a record meeting, so far as attendance is concerned.

The State pharmaceutical association meetings held this year appear to have been more than usually well attended. The scientific papers were numerous, and altogether it would appear as though interest in matters relating to true pharmacy was on the increase throughout the whole country.

The Seventh International Congress of Applied Chemistry was held in London, May 27 to June 2 inclusive. Upwards of 1000 communications were presented in the several sections.

The Pharmaceutical Section under the presidency of Mr. N. H. Martin, of New-Castle-on-Tyne, presented an unusually interesting program, nearly forty papers being read and discussed. In this connection it appears that considerable progress was made to further international uniformity, not alone in standards for potent medicaments but also in methods of analysis and standardization generally.

In the section on Pharmaceutical Chemistry several papers were read bearing on the variation in strength of potent drugs, and, on motion, it was agreed to appoint a provisional committee to inquire into the practicability of securing: (1) greater uniformity in the commercial supplies of potent drugs, and (2) approximation in the Pharmacopœias of the world to common standards of activity. This committee has been appointed and will no doubt present a comprehensive report and a practicable scheme of procedure at the next International Congress of Applied Chemistry, which is to be held in the city of Washington in 1912.

Other meetings of interest to pharmacists are the 12th International Congress on Alcoholism held in London, July 18 to 24, 1909, and the 16th International Medical Congress held in Budapest, Hungary, August 29 to September 4.

An International Congress of Pharmacy is to be held in Brussels in 1910, from September 1 to 5, which is to be devoted exclusively to the discussion of questions of international character. With the interest that has been aroused in connection with the International Congress for Applied Chemistry in matters relating to the desirability of establishing international standards for the more widely used drugs, this meeting at Brussels promises to be not alone well attended but also a powerful influence for progress.

Closing Medical Colleges.—An editorial points out that during

the past five years no less than thirty medical colleges, through merger or otherwise, have voluntarily closed their doors. This action has been taken chiefly that higher standards of medical education might prevail. It is quite evident that we are entering upon an era of reconstruction in medical education, and that eventually the medical schools in the United States, collectively, will be equal if not superior to those of any other country.—*J. Am. Med. Assoc.*, 1909, v. 52, p. 1842.

Dr. J. F. Stevens, the dean of the Nebraska College of Medicine, in an open letter announcing the closing of his school asserts that: "While academic training and opportunity (in America) have grown into magnificent and commanding proportions, the professional schools, with the exception of a small minority, have remained essentially elementary or even worse. In medicine the spirit of progress has at last become supreme and on all sides may be seen the work of destruction, re-organization and rebuilding." (*J. Am. Med. Assoc.*, 1909, v. 52, p. 1862.) It might be added, in this connection, that the rapid progress that is being made in matters relating to medical education has been brought about directly by the efforts of the Council on Medical Education of the American Medical Association.

Secrecy vs. Lack of Knowledge in Medicine.—A recent editorial in the *Journal of the American Medical Association* (1909, v. 53, p. 211) discusses the repeatedly made insinuation that because the physician does not know all about the active constituents of some of the well-known drugs it is not necessary for him to know much about the constituents of the proprietary remedies offered him by manufacturers. The writer points out that the fact that the physician has not been able to fathom all of the mysteries of some of the more widely used drugs, the physiological actions of which are familiar to him, is no reason why he should even countenance preparations the mystery of which is purely artificial and exists only for the purpose of gain or deceit.

The Valuation of Galenical Preparations.—Earl Dieterich, a German manufacturer of pharmaceutical preparations, discusses the valuation of ready-made galenical preparations and points out that the capable pharmacist can, and that it is his duty to, control the preparations that he buys so as to be able to assure the physician that the medicaments furnished are fully in conformity with the official requirements. He also calls attention to the fact that this

control is equally necessary whether the preparations are made by the pharmacist himself or purchased ready made.—*Pharm. Zentralb.*, 1909, v. 50, pp. 537-539.

The Regeneration of the Pharmaceutical Laboratory.—To insure the identity and activity of pharmacopœial medicaments, in Germany, it has been proposed to compel the home manufacture of all galenic preparations. The *Pharmazeutische Zeitung* (1909, v. 54, p. 467) contains a complete list of the preparations that it is proposed to include in the forthcoming requirement. The list as printed includes aromatic waters, fluidextracts, tinctures, syrups, spirits, liniments, solutions, plasters, ointments, wines, and the preparation of all drug powders from the crude material.

Foot-and-mouth Disease.—A statement from the Bureau of Animal Industry of the U. S. Department of Agriculture outlines the origin and the method of spreading the recent epidemic of foot-and-mouth disease, by cattle infected by means of a contaminated vaccine virus. While there was and is now no danger of communicating this disease to human beings, its existence unnoticed for so long a time is unfortunate.—*J. Am. Med. Assoc.*, 1909, v. 52, pp. 1679-1680.

Coal-tar Antipyretics.—Bulletin 126 of the Bureau of Chemistry, entitled "The Harmful Effects of Acetanilid, Antipyrin and Phenacetin" presents a compilation of the reported cases of poisoning by these drugs and incidentally illustrates the danger of the popular use of coal-tar antipyretics.

Comments on the U.S.P.—Bulletin 49 of the Hygienic Laboratory, Public Health and Marine-Hospital Service, is the first of a series of comments on the Pharmacopœia compiled at the request of the Board of Trustees of the U.S.P. Convention. An editorial in the *Pharmaceutical Era* points out that: "As an expression of Federal interest in a volume of National consequence Bulletin 49 marks a fresh milestone in the U.S.P. progress secondary only to the action of Congress in making it the official standard by legal enactment in the Pure Food and Drugs Act of June 30, 1906." The *Chemist and Druggist* (London) says of Bulletin 49: "It is a useful compilation, not only for the Revision Committee but for all pharmacists who are enthusiasts in pharmacy."

Criticisms of the British Pharmacopœia.—Henry G. Greenish, the secretary of the Ph. Brit. Committee of Reference in Pharmacy, in thanking contributors of criticisms says: "The desire has

frequently been expressed that all reports should be published for discussion previous to the issue of the Pharmacopœia, as the more fully they are criticized, destructively as well as constructively, the more likely is the next edition of the Pharmacopœia to represent the views of British pharmacists and to reflect credit on those who have taken part in the work of revision."—*Chem. and Drug.*, 1909, v. 74, p. 891.

British Pharmacopœia.—At a recent meeting of the Pharmacopœia Committee of the General Medical Council it was pointed out that valuable reports, containing suggestions for the better adaptation of the Pharmacopœia to local requirements in distant parts of His Majesty's dominion, continue to reach the committee from government authorities outside the United Kingdom. The committee hope to hold a special meeting during the autumn for the purpose of coming to a decision on certain points relating to the new Pharmacopœia and in particular on the question of omissions or inclusion of the several articles dealt with in the returns supplied by the licensing bodies and other medical authorities at home and abroad.—*Pharm. J.* (London), 1909, v. 28, p. 770.

French Codex.—The new French Codex came into force on May 15 of this year, according to P. Dorveaux (*Bull. des Sc. Pharmacol.*, 1909, v. 16, p. 323). The present is the fifth edition of this work. The first edition was published in 1818, succeeding to the "Codex Medicamentarius seu Pharmacopœia Parisiensis." The second edition was published in 1837, the third in 1866 and the fourth in 1884, with a supplement published in 1895. The now official fifth edition, published in 1908, has the same title as the fourth: "Codex Medicamentarius Gallicus, Pharmacopée française redigée par ordre du Gouvernement, Paris." The book, large 8vo, contains xxiv + 999 pages. The divisions which characterized former editions have disappeared and the contained medicaments and formulas are now arranged alphabetically.

The French Codex still retains an unusual number of polypharmaceutical preparations. *Tinctura vulneraria*, for instance, contains 19 ingredients, *electuarium diascordium* (much simplified) still contains 16, compound wine of squill 12, compound oil of hyoscyamus 11, and compound syrup of rhubarb 10.

Hanbury Medal.—The adjudicators of the Hanbury medal have awarded the medal this year to Prof. W. O. A. Tschirch, of Berne, Switzerland. To readers who have gone somewhat deeply into

the study of pharmacy on the scientific side, particularly to students of pharmacognosy, the work of Professor Tschirch is well known. He was born at Guben, in Prussia, on October 16, 1856, and for nearly thirty years has been an active contributor to pharmaceutical literature.—*Pharm. J.* (London), 1909, v. 28, p. 790.

Biologic Products.—A review of the discovery of the importance of internal secretion and the possible use of the several substances in therapeutics is followed by a brief description of a number of substances and preparations derived from organs of animals. The descriptions of pituitary substance, parathyroid gland, and red bone-marrow indicate that these substances are being marketed in a commercial way, while the descriptions of thymus gland, mammary gland, parotid gland, testicle, spleen, ovary, and corpus luteum indicate that no preparations, of an unobjectionable nature, are as yet available, or at least none are mentioned.—*J. Amer. Med. Assoc.*, v. 52, p. 1929.

Aconitine.—K. Makoshi reports on the examination of two varieties of Japanese aconite. He differentiates between tubers from Hondo and Hokkaido, reviews the work done by previous investigators, and records his experiments. The aconitine obtained from the Hokkaido tubers he designates *Jesaconitine* reserving the name *apaconitine* for the alkaloid obtained from the Hondo tubers.—*Ztschr. d. Allgem. österr. Apoth. Ver.*, 1909, v. 47, pp. 239–240.

Agaric acid is included in the new Swiss Pharmacopœia as *acidum agaricinicum*. It occurs as an odorless, tasteless powder which melts at 141.5° to 142° C. and is volatilized at high temperatures. Agaric acid is slightly soluble in cold water, also slightly soluble in alcohol, ether, chloroform, and carbon disulphide. The maximum single dose is given in the Swiss Pharmacopœia as 0.03 Gm. and the total daily dose as 0.10 Gm.

Apomorphine as a Hypnotic.—C. J. Douglas again calls attention to the usefulness of apomorphine as a hypnotic, when given hypodermically in doses of 0.003 Gm.—*J. Amer. Med. Assoc.*, 1909, v. 53, p. 238, from *Therap. Gaz.*

Asiphyl is the name given to the mercuric salt of para-anilar-sinic acid, the acid of which atoxyl is the sodium salt. Asiphyl occurs as a white salt becoming grayish on exposure to the air. It is sparingly soluble in water and readily dissolved by glycerin and by paraffin oil.—*Pharm. J.* (Lond.), 1909, v. 28, p. 784.

Organic Arsenic Compounds.—W. Harrison Martindale gives the following definitions for organic arsenic compounds:

Arsonic acid indicates arsenic acid, $\text{AsO}(\text{OH})_3$, in which one of the hydroxyls is replaced by an organic radicle. An arsonate is a salt of this acid.

Arsinic acid constitutes a dialkyl or dialkyl derivative of arsenic acid, i.e., cacodylic acid, and its homologues: phenylarsinic acid $(\text{C}_6\text{H}_5)_2\text{AsO.OH}$. It should be understood that the French and German chemists do not as a rule make these distinctions.

Arylarsonate is the term used to indicate an aromatic arsonate. Aryl indicates, e.g., phenyl, tolyl, xylyl, or naphthyl as applied to substituted hydroxyl in arsenic acid.

Arsanilic acid is a name given to *p*-aminophenyl arsonic acid, the sodium salt of which is in such repute at the present time.

Arsenoic. This term is found in French literature as referring to aromatic arsenic bodies containing two atoms of arsenic believed to be coupled together by a double linkage, e.g., $\text{C}_6\text{H}_5\text{As}=\text{AsC}_6\text{H}_5$, arsenobenzene, comparable with $\text{C}_6\text{H}_5-\text{N}=\text{N}-\text{C}_6\text{H}_5$, azobenzene.—*Chem. and Drug.*, 1909, v. 75, p. 19.

Citarin.—J. Lorenzen calls attention to some unexpected secondary effects that may be caused by citarin, sodium anhydromethylene-citrate. He asserts that this substance is readily decomposed, liberating free formic aldehyde, which he asserts can be readily demonstrated by the sense of smell.—*Apoth. Ztg.*, 1909, v. 24, p. 478.

Cyanotoxin.—This name is applied by H. Fuinemore to a substance isolated from *Apocynum cannabinum* after the removal of the apocynin by means of ether. Cyanotoxin is said to have the formula $\text{C}_{20}\text{H}_{28}\text{O}_6$ and occurs as white rhombic pyramids having a melting-point of about 165°C . It is comparatively insoluble in water but has an intensely bitter taste.—*Apoth. Ztg.*, 1909, v. 24, 491 (from *Proc. Chem. Soc.*).

Elaterin.—A. Berg reported making cryoscopic determinations of elaterin to ascertain the formula which he believes to be $\text{C}_{28}\text{H}_{38}\text{O}_6$. He has made a number of derivatives of elaterin such as diacetyl elaterin, elateridin, elateroxin, bromide derivatives, and products formed by the action of silver oxide. From these he is able to show that the elaterin molecule contains two hydroxyl ethereal phenols, an acetyl group and a ketone radicle.—*Chem. and Drug.*, 1909, v. 74, p. 874.

Euphylline is a crystalline combination of theocine and ethylen-

diamine containing 77 per cent. of theocine.—*Bull. Sc. Pharmacol.*, 1909, v. 16, p. 297.

Euphorphine is the name for a bromomethylate of apomorphine which is said to possess all of the desirable physiological properties of apomorphine without the irritant action of the latter. It is also said to be more stable and more soluble than apomorphine. It may be given in doses of 0.01 to 0.04.

Glucoside-containing Extracts.—Rosenthaler and Meyer review the work that has been done to determine the influence of various substances on the glucosides contained in various drugs. They record a number of additional experiments and conclude that glucosides are readily decomposed by the usual method of extracting. Calcium carbonate does not appear to prevent this decomposition. Boiling alcohol appears to inhibit decomposition and is recommended for the extraction of such drugs as gentian, cascara and rhubarb.—*Ztschr. d. allgem. österr. Apoth. Ver.*, 1909, v. 47, pp. 257, 265, 277, 289.

Honey as a Vehicle for Iodides.—An abstract from a paper by L. de Prado (*Bull. gen. de Therap.*) suggests the use of honey as a vehicle for potassium iodide and for iodides generally. It is claimed that a mixture of honey and water, which may be flavored with a small quantity of brandy or made alkaline by the addition of potassium carbonate, is particularly well suited to prevent the gastric disturbances frequently caused by potassium iodide.—*Apoth. Ztg.*, 1909, v. 24, p. 467.

Ipecacuanha Cultivation.—E. M. Holmes reports a systematic examination of several samples of ipecacuanha to determine the nature of the soil constituents required for successful cultivation. The detailed results of this examination indicate that phosphate of lime and salts of magnesium and potassium are the principal ingredients required by the plant.—*Pharm. J. (Lond.)*, 1909, v. 28, p. 765.

Jalap.—A study of the chemistry of jalap was presented at the International Congress of Applied Chemistry, by Power and Rogerson, who conclude that the resin of jalap is of much more complex nature than has hitherto been assumed and that none of the amorphous products obtained from it possess the attributes of a homogeneous substance. It follows that the formulæ which have hitherto been assigned to these substances are devoid of any significance or scientific value.—*Pharm. J. (Lond.)*, 1909, v. 29, pp. 7-8.

Mercuric Salicylate.—A description for this substance has been published by the Council on Pharmacy and Chemistry of the American Medical Association (*J. Amer. Med. Assoc.*, 1909, v. 53, p. 33). This article has been quite widely used and pharmacists, unless they have had access to foreign pharmaceutical literature, have had difficulty in finding the desired information regarding its properties or tests for identity and purity.

Nux Vomica.—Planchon and Juillet have examined a number of samples of powdered nux vomica and found many of them grossly adulterated. The adulterants were mainly olive pits and vegetable ivory, *Phytalephas macrocarpa*, which they describe at some length. —*Nouv. Remed.*, 1909, v. 21, pp. 241-250.

Oleate and Stearate of Mercury.—D. B. Dott points out that the oleate of mercury of the Ph. Brit. is an unsatisfactory preparation and suggests that a stearate of mercury be introduced into the Pharmacopœia to take its place. He outlines a formula for stearate of mercury to be made by decomposing sodium stearate with a solution of mercuric chloride, washing the resulting precipitate. —*Chem. and Drug.*, 1909, v. 74, p. 785.

Opium.—The reports from Turkey indicate that the opium crop this year will amount to from 7000 to 8000 cases. This is considered a good average as the world's annual requirements are estimated to be 6000 cases. —*Chem. and Drug.* (Lond.), 1909, v. 74, p. 948.

Tincture of Opium by Percolation.—Möller discusses the international requirement that tincture of opium be made by percolation and points out that he has been instrumental in having included in the Danish and the new Swedish Pharmacopœias a method that directs the addition of clean sand and percolation without previous maceration. He asserts that this method is practicable and has proven to be uniformly successful. —*Ber. d. deut. pharm. Gesellsch.*, 1909, pp. 240-243.

Physostigmine.—C. Reichard reviews the characteristic reactions for the alkaloid of the West African calabar bean. He describes at some length the reactions produced with acids and salts of molybdenum, vanadium, tungsten, and titanium. The reactions with other reducing as well as oxidizing agents are described and compared with the reactions given with other alkaloids. —*Pharm. Zentralb.*, 1909, v. 50, pp. 375-384.

Sabromin.—Dibrombehenate of calcium is prepared from erucic acid by the addition of bromine and the transformation of the

dibrombehenic acid thus obtained into the calcium salt. Sabromin, the trade name for the resulting compound, occurs as a colorless, odorless, and tasteless powder claimed to contain 29 per cent. of bromine and about 3.8 per cent. of calcium. It is insoluble in water and alcohol but soluble in ether, acetone, benzol and carbontetrachloride.—*J. Amer. Med. Assoc.*, 1909, v. 52, p. 1407.

Solubilities of Salicylates.—Atherton Seidell has determined the solubilities of the official, U.S.P., salicylates in water, alcohol, and in varying mixtures of these two solvents. His results indicate that some at least of the officially stated solubilities are in error and that there is a need for much careful work in connection with the solubility factor of official articles.—*Chem. and Drug.*, 1909, v. 74, p. 881.

Scammony.—J. Warin reports the occurrence of an imitation scammony produced by the admixture of scammony resin with various substances. He outlines a number of tests, notably one with sulphuric acid which is said to yield a red coloration with the synthetic product but not with genuine scammony.—*Apoth. Ztg.*, 1909, v. 24, p. 490.

Tragacanth.—H. Runne discusses the testing of tragacanth and points out that this substance contains starch that can readily be demonstrated under the microscope by means of an iodine potassium iodide solution. The amount of starch present is small and the resulting reaction with iodine is not readily demonstrated to the naked eye. For detecting the admixture of acacia he outlines a number of color reactions that are characteristic of the oxydase present in gums of the acacia type.—*Apoth. Ztg.*, 1909, v. 24, pp. 389-391.

BOOK REVIEW.

A MANUAL OF VOLUMETRIC ANALYSIS. For the Use of Pharmacists, Sanitary and Food Chemists, as well as Students in These Branches. By Henry W. Schimpf, Ph.G., M.D. Fifth edition, 8vo, xx + 725 pages, illustrated, cloth \$5.00.

This work is a rewritten and much enlarged edition of the author's "Text-book of Volumetric Analysis," an effort being made to bring the book up to date in regard to methods of analysis. It is divided into four parts, the first of which includes general prin-

ciples, indicators, apparatus, methods of calculations, classification of analyses according to the chemical principles involved, and typical analyses by the various volumetric solutions.

Part II applies volumetric methods to the analysis of the more important metals and of some acids and their salts, although most of the acids and the alkalies are included in Part I under Neutralization Analysis.

Part III is devoted to sanitary analysis and the volumetric analysis of organic medicinal substances: water; dairy products; fats, oils and soaps; sugars; alkaloidal assays; galenicals; urine, etc., etc.

Part IV is devoted to a few of the more important gasometric determinations.

The fundamental chemical principles upon which volumetric analysis is based and the calculations involved have been presented with unusual care and the student is enabled to work out and verify for himself figures and factors instead of following mechanically (as is too often the case) those given in tables.

There are a number of useful and convenient tables, including the usual factor tables and those for temperature and pressure corrections for gases, although a table of tension of aqueous vapor at different temperatures is omitted. Tables of color changes of indicators with acids and alkalies, one showing behavior of some alkaloids with some indicators and another serving as a guide in the choice of indicators for acids and alkalies, are valuable features. A table of specific gravities and percentages of acetic acid is included and in this connection it seems unfortunate that similar tables for the common inorganic acids and ammonia water were omitted.

The methods given, especially in Parts II and III, are sufficiently numerous to meet the requirements of most chemists, but the value of the book as a reference work is further enhanced by the numerous bibliographical references.

Taken as a whole the book will be found a valuable aid to any chemist and no less so to the student of analytical chemistry.

J. W. EHMAN.

AMERICAN PHARMACEUTICAL ASSOCIATION.

FIFTY-SEVENTH ANNUAL MEETING.

The fifty-seventh annual meeting of the American Pharmaceutical Association was held at Los Angeles, California, from August 16 to August 21. This was the second time in the history of the association that its members met together in California, the former meeting having been held there in 1889. Probably never before in the history of the association were the retail druggists throughout the land more intensely interested in the deliberations of this national body. The official organ of the National Association of Retail Druggists devoted one of its issues (July 29) to espousing the work of the A. Ph. A. in a most ardent and sincere manner and calling the special attention of the retail pharmacists to the helpful work that the A. Ph. A. has been doing.

It was unfortunate that the President, Professor Oscar Oldberg, was unable to be present, by reason of illness, to deliver his address, which was able and sincere and a model presidential address. It represented the deliberations and results of a long experience in the study of pharmaceutical conditions and practice. That it may not meet with immediate approval in some respects is not remarkable. Every member of the association and, in fact, every retail pharmacist should read it carefully, for it is a summary of the conditions of to-day in pharmaceutical practice and is inspiring with its wholesome optimism and constructive criticism. We do not recall a presidential address that contains such an analytical treatment of the workings of the A. Ph. A. and which practically amounts to giving a plan of reorganization of the association, since the founding of this body.

The address of welcome in behalf of the city was made by one of the city officials through the unavoidable absence of the Mayor and was responded to on behalf of the association by Professor Lloyd. A number of other felicitous addresses were delivered by well-known members representing the various national associations and departments of the government.

Important reports from several of the committees were presented and some of these will be published either in full or in abstract in later issues of this JOURNAL. The officers for 1909-1910 elected by mail in September and October, 1908, are: President, Prof. Henry H. Rusby; Vice-Presidents, Dr. Clement B. Lowe, Prof.

Charles W. Johnson, and Prof. Wm. B. Day; Members of the Council: Prof. Oscar Oldberg, Prof. Charles E. Caspari of St. Louis, and Mr. George M. Beringer.

THE SECTION ON SCIENTIFIC PAPERS.

The chairman of the section, Prof. Charles E. Vanderkleed, was unable to be present and owing to ill health was compelled to give up the preparation of an address. It will be recalled that Professor Vanderkleed presided creditably over this section at the last two meetings of the association in the unavoidable absence of the chairmen-elect, viz., Dr. Reid Hunt in 1907 and Prof. Virgil Coblenz in 1908. The sessions of the section were presided over by the Secretary, Mr. M. I. Wilbert. The reports of the several committees were received and adopted, including that of the Committee on Drug Market. The following officers were elected for the ensuing year: Chairman, Mr. M. I. Wilbert; Secretary, Prof. A. H. Clark.

The following are abstracts of some of the papers which were presented:

WHY TETANUS ANTITOXIN SHOULD BE IN THE U.S.P.

By John F. Anderson.

As a result of the adoption of an American standard for measuring the strength of diphtheria antitoxin by the U. S. Public Health and Marine-Hospital Service, the Eighth Decennial Revision of the Pharmacopœia included antidiphtheric serum, and made the American unit the Pharmacopœial standard of potency.

On October 25, 1907, the same service as a result of work done in the Hygienic Laboratory promulgated an American standard unit for tetanus antitoxin. All tetanus antitoxin manufactured and sold in interstate commerce in the United States is required to be standardized in accordance with this unit. The unit may be defined as follows:

"The immunity unit for measuring the strength of tetanus antitoxin shall be ten times the least quantity of antitetanic serum necessary to save the life of a 350-gramme guinea pig for ninety-six hours against the official test dose of a standard toxin furnished by the Hygienic Laboratory of the Public Health and Marine-Hospital Service."

The great need of an official standard for tetanus antitoxin had been long felt by all producers of this serum. Before the adoption of the American standard there were as many methods of measuring the potency of tetanus antitoxin in the United States as there were producers. The druggist in selling a package of tetanus antitoxin, or the physician in using the same, before the adoption of the official standard, had no real idea of its antitoxic power, as one maker's product might be labelled "to contain 6,000,000 units per c.c." and another "0.75 units per c.c.," when, in fact, according to the official standard, the first had only 90 units per c.c. and the latter actually over 700 units per c.c.

An Act of Congress approved July 1, 1902, entitled "An Act to regulate the sale of viruses, serums, toxins, and analogous products, etc.," imposed upon the Surgeon-General of the U. S. Public Health and Marine-Hospital Service, under direction of the Secretary of the Treasury, the supervision and control of the manufacture and interstate sale of these important therapeutic agencies.

Since April 1, 1905, many samples of serum have been examined in the Hygienic Laboratory, and of this number only a very few have been found to be below strength or to contain a less number of units than labelled, or to have bacterial contamination.

The great advantage of this strict control over these products to the physician, and consequently in the control of the various diseases for which they are used, is of course very manifest.

Now the physician when he buys a package of diphtheria or tetanus antitoxin labelled to contain 1000 or 2000 units, as the case may be, can be absolutely sure that his patient will get at least that number of units.

Tetanus antitoxin is in the Belgian, French, and Swiss Pharmacopœias, and should certainly be included in the next revision of the Pharmacopœia of the United States. Its great value as a prophylactic without regard to its curative action in developed tetanus, and the fact that there is now an official standard, entitle it to admission.

By being admitted to the Pharmacopœia, which contains the standards for therapeutic products, definite directions as to the methods of preserving the serum, total solids, physical appearance, etc., can be made. All antitoxic sera deteriorate by age; this deterioration is less and more gradual when the sera are kept under proper conditions as to light and temperature. Sera kept at room

temperature suffer a loss in antitoxin potency of from 10 per cent. to 30 per cent. in twelve months, while when kept in the ice chest the loss may vary from 0 per cent. to 5 per cent. or 10 per cent.

A NOTE ON THE ASSAY OF JALAP U.S.P.

By A. H. Clark.

In following the U.S.P. directions for the assay of jalap, when the resin is finally extracted from the alcoholic percolate with chloroform, an emulsion invariably forms which takes from twelve hours to two or three days to separate completely.

The U.S.P. directs that the drug be exhausted with ether to obtain ether-soluble resin, then directs to "continue the percolation with alcohol," etc., to obtain the alcohol-soluble resin, but fails to take into consideration the ether still remaining in the drug. If these directions are followed strictly the emulsion above referred to invariably forms. If, however, the ether is removed before continuing the percolation with alcohol no emulsion forms when the percolate is mixed with chloroform and water no matter how violently it be shaken, and complete separation takes place in from one-half to one hour.

A current of air drawn through the percolator by means of a filter pump for a few minutes, stirring the powder with a glass rod during the time, is a convenient method of removing the ether. If a filter pump is not available the powder may be removed to an evaporating dish and the ether allowed to evaporate spontaneously, returned to the percolator, and the operation continued.

THE ALKALOIDS OF MENISPERMUM CANADENSE.

By H. M. Gordin.

The rhizome and roots of yellow parilla were first investigated by Maisch. He reported the presence of a small quantity of berberine and of a white alkaloid, which he named menispine. Subsequently the drug was investigated by Barber, Young, and Berkmeier. That berberine is not present in the drug in detectable quantities has been shown by the author in a previous paper.

The author conducted the following preliminary experiments:

On shaking a few grammes of the powdered drug with ether, filtering the liquid and shaking out the ethereal solution with acidi-

fied water, an aqueous liquid was obtained in which neither Mayer's nor Wagner's reagent gave any indication of the presence of alkaloids. Hence the alkaloids in the drug are most probably in the form of salts, not in the free condition.

An assay of the drug by means of Prollius's fluid, using chloroform for the final shaking out, showed that the drug contained 3 per cent. of crude dark-colored alkaloids which are completely soluble in chloroform, but only partly soluble in ether. By extracting the crude alkaloids with ether it was found that the 3 per cent. consisted of 1.2 per cent. of ether-soluble alkaloidal matter, and 1.8 per cent. of alkaloidal matter soluble in chloroform, but insoluble in ether.

Both alkaloidal substances are difficultly soluble in water, and still less in presence of sodium carbonate. They are quite soluble in excess of ammonia, and extremely easily soluble in excess of potassium hydroxide. This accounts for the very small yield obtained by previous investigators who used alkali instead of alkali carbonate for precipitating the alkaloids.

From acid solution the alkaloids are not extracted by chloroform, showing that their basicity is not very feeble.

Several experiments were made with a view of finding the best menstruum for extracting the alkaloids. It was found that cold alcohol extracts about 50 per cent., while hot alcohol extracts about 80 per cent. of total alkaloids.

ON THE CRYSTALLINE ALKALOID OF CALYCANTHUS GLAUCUS.

By H. M. Gordin.

This is the third paper by the author on this subject (see this JOURNAL, 1908, page 483). The present paper deals with the examination of the alkaloid obtained by him from a new batch of calycanthus seeds. While having the same formula as the calycanthine obtained from the first batch of seeds, it had a different melting-point and refused to give off its water of crystallization, when heated, without undergoing decomposition. When kept in vacuo over sulphuric acid it lost its water of crystallization so slowly that even after several months' drying all the water did not go away. The new alkaloid was named isocalycanthine and was analyzed in form of some of its salts. Having failed to obtain anhydrous isocalycanthine by drying it in vacuo over sulphuric acid at ordinary

temperature, attempts were made to dry 1 Gm. of powdered crystals at 120° for eight hours in a current of hydrogen and at 130° in vacuo over phosphoric anhydride. In neither case was the dehydration complete, as shown by the fact that the alkaloid so dried, when put in vacuum over sulphuric acid, again began losing in weight. The author is still keeping a quantity of isocalycanthine in vacuo over sulphuric acid, weighing it once a month. It is quite probable that after a year or so the weight will become constant. In the meantime he has devised a method by which isocalycanthine can be obtained anhydrous from the start. For this purpose the crystallized alkaloid is dissolved in chloroform which dissolves it quite readily, but the solution is turbid and does not become transparent even upon addition of considerable quantities of the solvent, showing that the turbidity is due to separation of the water of crystallization. The turbid solution is shaken with calcined potassium carbonate and filtered. The solution is kept in vacuo over paraffin till all the chloroform is absorbed by the latter. A crystalline mass remains which is anhydrous isocalycanthine. A quicker way is to reduce the volume of the solution to one-third by passing a brisk current of dry hydrogen over its surface and then adding a considerable amount of petroleum ether. On standing over night most of the alkaloid crystallizes out in anhydrous condition.

The alkaloid obtained by either of these methods has a slightly yellowish tint. It begins to darken at 220° and melts at 235°-236° C.

Analysis gave C, 75.14 and 75.71 per cent.; H, 7.54 and 7.64 per cent.; N, 15.78 per cent. Calculated for $C_{11}H_{14}N_2$: C, 75.77 per cent.; H, 8.12 per cent.; N, 16.12.

While the results of the analyses are slightly below the theoretical, they leave no doubt about the alkaloid being anhydrous. A number of salts were made and are reported upon in the paper.

THE CONDENSATION OF CHLORAL WITH PRIMARY AROMATIC AMINES.

By Alvin S. Wheeler and S. Jordan.

This is a continuation of work described by Wheeler (*Jour. Amer. Chem. Soc.*, 24, 1063, and 30, 136). In the latter paper it was stated that the product of the condensation of chloral and o-toluidine possessed physiological properties. It will undoubtedly

be found true that all of these new compounds have a physiological action. The authors will furnish the material to any one who is in a position to make the necessary experiments. A description of the following compounds will shortly be published. Trichlorethylidenedi-m-bromphenamine, white needles, melt at 115° – 116° C. Trichlorethylidenedi-p-aminobenzoic acid, crystalline masses, melt at 215° – 220° C. Trichlorethylidenedi-m-aminobenzoic acid, colorless crystals, melt at 240° C. with decomposition. Trichlorethylidenedi-o-nitro-p-tolamine, colorless crystals, melt at 108° – 109° C. Chloral-2-nitro-4-toluidine, yellow needles, melt at 187° – 188° C. Trichlorethylidenedi-p-nitro-o-tolamine, long golden-yellow needles, melt at 142° – 143° C. Trichlorethylidenedi-m-nitro-p-tolamine, brownish-yellow needles, melt at 165° – 166° C. Trichlorethylidenedi-m-chlor-p-tolamine, long silvery-white needles, melt at 110° C. Chloral-m-chlor-p-toluidine, silvery-white needles, melt at 182° – 183° C. Trichlorethylidenedi-p-brom-o-nitrophenamine, small lemon-yellow needles, melt at 190° – 191° C. Trichlorethylidenedi-p-brom-m-nitrophenamine, yellow needles, melt at 147° – 148° C. Trichlorethylidenedi-p-iodophenamine, gray branching needles, melt at 123° C. Trichlorethylidenedi-4-brom-1-naphthylamine, violet powder, decomposing without melting. Trichlorethylidenedi-p-aminoacetophenone, thin-rectangular plates, melt at 162° C.

RESIN OF PODOPHYLLUM.

By Wilbur L. Scoville.

In this paper the author reviews the history of the resins of *Podophyllum peltatum* and *P. emodi*. As a distinguishing test, the color of the solution is sufficient. While it is undoubtedly true that the color of the resin, as it appears on the market, may be varied by details in precipitation, drying, etc., so that the color in the dry form is of little or no value, in solution each has a distinctive color. The resin of *P. peltatum* gives solutions of a reddish-brown color, while those of *P. emodi* have a marked olive-green tint, with but traces of brown, and this is especially marked in benzol and chloroform solutions. Both resins are entirely soluble in methyl, ethyl, butyl, and amyl alcohols, in ethyl and amyl acetates, and in acetone and pyridine. Benzoyl chloride forms a compound with each.

The following table gives the percentage of resin of each variety which was found to be soluble in the respective solvents, with the

observed melting-points of the soluble portions. The resin of *P. peltatum* lost 3.215 per cent. on drying at 100° C., and that of *P. emodi* 3.25 per cent.

SOLVENT.	P. PELTATUM RESIN.	P. EMODI RESIN
Ethyl alcohol.....	99.5 %	98.01 %
Petroleum ether.....	3.41 %	1.94 %
Carbon tetrachloride.....	8.12 %, melting-point 114-133	6.85 %, melting-point 168
Carbon disulphide.....	12.65 %, melting-point 40-63	6.95 %, melting-point 40-46
Benzol.....	25.57 %, melting-point 80-129	23.60 %, melting-point 80-118
Toluol.....	32.40 %, melting-point 70-103	18.50 %, melting-point 75-103
Chloroform.....	70.60 %, melting-point 86-120	76.90 %, melting-point 92-120
Ether.....	89.00 %	83.72 %

The melting-points in all of the above simply indicate that each solvent extracts a mixture of bodies, and that a separation of the constituents by this method is impracticable. Petroleum ether is said to extract mainly fat, and benzol appears to extract the coloring matters more quickly than the other partial solvents. Carbon disulphide solution contains a considerable proportion of resin.

It is apparent that by the best methods of estimation at present known the resin from the Indian drug contains about twice as much podophyllotoxin as that from the American rhizome.

Some pure podophyllotoxin was then separated from each resin for comparison. On dissolving the resin in chloroform and pouring the chloroformic solution into twenty times its volume of petroleum ether (which was the method proposed by Kremel and used by Umney as the basis of his judgment concerning the relative value of the two resins), it was noticed that the resins are precipitated more easily and completely than the podophyllotoxin by the petroleum ether. The greater portions of the resins and coloring matter were separated by fractional precipitation in this way, the first precipitate being rejected and the second reprecipitated several times.

Finally a pure product was obtained by fractional crystallization from benzol solutions. In this way about 3 Gm. of pure white podophyllotoxin was obtained from 100 Gm. of resin of *P. peltatum*, and about 16 Gm. having a faint green tint from the resin of *P. emodi*.

The first melted sharply at 117° C. and the second at 117.5° C., showing that both are practically pure products. There is a large loss in purifying, yet the greater yield obtained from the Indian resin is confirmatory of the conclusions reached by the assay processes.

These pure podophyllotoxins are now being tested for relative toxicity and activity. Previous trials by physiological methods of the two resins failed to show any marked difference in their activity.

THE MICROSCOPY OF LARKSPUR AND STAVESACRE.

By Charles W. Ballard.

The author summarizes his results as follows:

Larkspur—outer layer, cells dark in color with convoluted walls; middle layer, white thin-walled polygonal cells; inner layer, dark brown, rectangular cells, much longer than broad and larger than the corresponding cells of stavesacre.

Stavesacre—outer layer, dark brown polygonal cells with thick, straight walls; middle layer, large white cells with convoluted walls; inner layer, brown rectangular cells, smaller than those of larkspur.

THE EXAMINATION OF POTASSIUM CHLORATE.

By A. R. L. Dohme and H. Engelhardt.

A serious explosion of potassium chlorate, which happened in the laboratories of Sharp and Dohme some time ago, has induced the authors to examine a great number of samples of potassium chlorate, including the one which caused the explosion, more critically than the U.S.P. requires, especially also for hypochlorites and chlorites. All the samples, which answered perfectly the requirements of the U.S.P., did not contain these two substances, but, while answering the test proposed by Carlson and Gelhaar, they did not stand the reaction required by Gartenmeister.

The authors think, however, that this chloro-oxycompound which Gartenmeister suspects in potassium chlorate or the potassium bromate, as claimed by Kloppstock, is present usually in such small amounts as not to render the salt dangerous, for tons of potassium chlorates have been used, and especially compressed in the laboratories here, without having caused the slightest damage. It would be well if the sub-committee on inorganic salts would take up the potassium chlorate question for the next Pharmacopœia, and if possible work out a test which would eliminate questionable and dangerous products.

ON THE KEEPING QUALITIES OF SOME U.S.P. VOLUMETRIC SOLUTIONS.

By A. H. Clark.

The author has accumulated during the past three years considerable data on the keeping qualities of some standard volumetric solutions, and presents the facts just as they developed in the course of regular work.

IDENTIFICATION OF FLUIDEXTRACTS.

By H. M. Gordin.

The author considers the need of introducing into the U.S.P. methods for the identification of powdered drugs and galenicals. While the identification of fluidextracts could be made more complete by determinations of more constants, *e.g.*, amount of water required to produce permanent turbidity, angle of refraction, etc., yet for practical purposes, however, a determination of the specific gravity, of the strength in alcohol, and of the amount of solid residue would be quite sufficient for preventing the substitution of cheap sophisticated methods for those given in the U.S.P.

OBSERVATIONS ON COMMERCIAL TINCTURES OF IODINE.

By Agnes Dunning and L. E. Sayre.

The object of this paper is to show that on keeping tincture of iodine in cork-stoppered bottles the concentration of the iodine is progressive. The authors' experiments further show that the official tincture of iodine can be safely transported to the laboratory for analysis, and the legality of such analysis should not be questioned, because of the cork stopper. They further show that if the sample on analysis indicates a deficiency in strength, this cannot be due to the age of the sample nor to the cork-stoppered container. The objection to the glass-stoppered container is too well known, for a preparation of this kind, to need description. In Kansas these containers were tried, and they proved very unsatisfactory. It is almost impossible to get a small glass-stoppered bottle, the stopper of which is sufficiently well ground to transport in it this volatile preparation.

BEEF, WINE AND IRON.

By H. Engelhardt and H. W. Jones.

On several occasions it has been claimed that the process of the N.F. for making beef, wine and iron is faulty, and that a great loss of nitrogen and especially of iron occurs in the filtering directed by this method. In one case it was reported that the iron was reduced to one-tenth of the required amount. The loss of nitrogen, while not so great, was considerable enough, however, to bring the preparation below the standard. It has been recommended also that the tincture of citrochloride of iron might preferably be substituted by iron-ammonium citrate, as the latter, according to some investigators, is not so prone to precipitation by the proteids of the beef extract.

That such great losses should occur, even when the materials used were of the best and the greatest care was exercised in making the preparation, seemed hardly possible, and since this preparation is one of considerable importance to the retail pharmacist as well as to the large manufacturer, it was deemed of interest to investigate the matter. The authors conclude from their experiments that if the N.F. formula is strictly adhered to only a small loss of either nitrogen or iron is experienced.

THE ASSAY METHODS OF THE U.S.P.

By A. R. L. Dohme and H. Engelhardt.

The authors give the results of their experience with the official methods and with some of the new processes published during the last few years. From many sides the processes in which an aliquot part is taken are condemned as being faulty, the aliquot part not always presenting the exact amount desired. While they agree in general with this view, the authors point out at the same time that for practical purposes the shorter method of taking an aliquot part is sufficiently accurate, a view which is also taken by Fromme (*Geschaeftsberichte C. & L.*, 1907, page 25).

PURITY OF SOME OFFICIAL AND NON-OFFICIAL DRUGS AND
CHEMICALS.

By A. R. L. Dohme and H. Engelhardt.

This is a continuation of the work of the authors in giving the results of their examination of about nine thousand chemicals and

drugs examined during the last year in their laboratory. As a whole, the preparations showed up very well; only in a comparatively few cases were they compelled to reject the shipments or samples submitted.

FACTORS RELATING TO THE STANDARDIZATION OF DIGITALIS.

By Worth Hale.

In concluding an article dealing with the difficulties of standardizing digitalis and its preparations the author says:

It would seem very desirable if the revisers of the next edition of the Pharmacopœia could adopt some method and some definite unit to which all digitalis preparations would conform. Such tests might be made only for the crude drug; but it would seem advisable until we know more definitely about the keeping qualities of the various preparations that they also be standardized, and if deterioration were discovered in these through improper storage or otherwise, that they be withdrawn from the market.

The problem of carrying out such tests as should be decided upon is somewhat difficult since this would probably require some special knowledge of animal experimentation. Manufacturers would necessarily need to make such tests, as many already are doing, before placing their preparations upon the market. Further control might be delegated to the laboratories of the various State Boards of Public Health, to municipal laboratories, and finally the general control might be placed in the hands of the Federal Government which should have general supervision of such standardization and which could best unify and make effective these various agencies for securing uniform and stable digitalis preparations.

ALCOHOL AND ALCOHOLIC BEVERAGES IN THE U.S.P.

By M. I. Wilbert.

The author gives the following reasons why brandy, whiskey, and red wine at least should be deleted from the Pharmacopœia.

1. They are not distinctly valuable medicinal agents.
2. They are not necessary in the production of official medicinal preparations.
3. The sale of alcohol, brandy, whiskey, and wine is restricted by Federal and State laws to dealers in alcoholic beverages, and cannot be engaged in, legally, by other than a licensed vendor.

4. The preparation and sale of medicines is provided for by special regulations exempting druggists from the payment of special tax.

5. At the present time the Internal Revenue Department adequately provides means by which the consumer can assure himself of the identity and nature of the whiskey he buys, and the same department could, if necessary, extend this provision over other branches of the liquor trade, and thus assure a much more uniformly pure and reliable article than can be secured by any possible collection of physical and chemical tests.

In brief the official descriptions for brandy, whiskey, and red wine are incomplete, misleading, unnecessary, and tend to debase pharmacy into an adjunct of the liquor trade. Their presence has never been a credit to the Pharmacopœia, and the sale of liquors for medicinal use has never been anything but a curse to the individual druggist or to the profession as a whole.

THE MATERIA MEDICA OF PERAK.

By E. M. Holmes.

This is an interesting paper dealing with the medicinal products employed by the denizens of the State of Perak in the Malay Peninsula. A collection illustrating these products was recently forwarded to the Museum of the Pharmaceutical Society of Great Britain by Mr. A. P. Machado, a planter residing on Kemuning Estate, Sungei Siput.

NOTES ON THE CHINESE MATERIA MEDICA OF SAN FRANCISCO.

By Albert Schneider.

This is a valuable paper dealing with the drugs used by the Chinese in San Francisco. The work is to be continued, the writer being now engaged in a macroscopical and microscopical study of the more important Chinese drugs of San Francisco.

ELIXIR OF LACTATED PEPSIN.

By W. A. Pearson.

The author has tried digestions with elixir of lactated pepsin in several concentrations at many temperatures, and under various degrees of acidity and alkalinity without any more action than the corresponding blank experiment under the same conditions.

SECTION ON PHARMACEUTICAL EDUCATION AND LEGISLATION.

The address of the Chairman, Joseph W. England, dealt with the important problems of education and shorter hours, both of which it is rather fortunate are being gradually solved. Quoting from the report of the U. S. Commissioner of Education for the year ending June 30, 1908, it is stated: "While there is a constant decrease in the number of medical and dental students, there is a considerable increase in students of pharmacy, the whole number being 5567, or 520 more than in the preceding year, and larger than it has ever been before. It is probable that this increase, like that in law and dentistry a few years ago, is more apparent than real, so far as the number of persons entering the profession of pharmacy is concerned. Instead of young men depending entirely upon shop experience for their knowledge of pharmacy, as was the custom very generally not many years ago, it is probable that more of them now enroll themselves in schools of pharmacy, where they expect to receive systematic and valuable instruction in a much shorter time than when behind the counter. If this be the correct explanation of the increased number of students in pharmacy, there will probably be a more competent addition each year to the pharmaceutical profession, but only about the usual quota of new members."

The number of schools of pharmacy in 1875 were 14; in 1885, 21; in 1895, 39; in 1905, 67; and in 1908, 75.

The number of students in 1875 were 922; in 1885, 1746; in 1895, 3859; in 1905, 4944; and in 1908, 5567.

The number of graduates in 1875 were 208; in 1885, 396; in 1895, 1067; in 1905, 1518; and in 1908, 1529.

It is interesting to note that out of the 75 schools there are only 9 that have less than 25 students; in 14 there are over 100 students, and in 1 school 495 students. The general average is nearly 75. One State (Ohio) has 6 schools with a total number of 289 students; another State (Pennsylvania) has 4 schools with a total number of 958 students.

The 75 schools represent 35 States, and in 20 of these States there is more than 1 school, clearly showing the need of merging the smaller and weaker equipped pharmaceutical schools into a lesser number of well-equipped and strong institutions.

It must not be forgotten that examinations, at the best, form only an imperfect test of knowledge. They are in no sense a substitute

for the systematic, comprehensive training of the schools of pharmacy; and every State pharmacy law should contain not only a prerequisite clause for pharmacists, but also one for assistant pharmacists. Such a requirement would be most helpful, first, to the public in furnishing more competent service, second, to pharmacists in securing more competent help, and last, but not least, to the assistants themselves in advancing their standing and recompense.

One of the most progressive steps ever taken by the State Boards of Pharmacy was the requirement adopted over five years ago by the Pennsylvania State Board of Pharmacy, and followed by some other State Boards, that practical examinations would be required of applicants for examination, and this requirement should be demanded by every State Board in the country. Pharmacy is both an art and a science, and it is most essential that the candidate should demonstrate his fitness for practical work as well as his theoretical knowledge; otherwise he is valueless as a practical man.

The Secretary, Prof. Charles H. LaWall, in his report gave a summary of the legislation in some of the States as follows:

FLORIDA.—The passage of a new pharmacy law in this State has resulted in the establishment of an annual renewal fee for registration, the raising of the registration application fee to \$15, and the elimination of the recognition of a college diploma in lieu of examination.

MASSACHUSETTS.—The Pharmacy Act was amended so as to provide for reciprocal registration and also providing for suspension of registration for violation of the adulteration clause or for the habitual use of intoxicants or drugs.

MICHIGAN.—The pharmaceutical legislation in this State was greatly strengthened by the passage of what has been pronounced a "model" cocaine law, simple in its phraseology and sweeping in its effect. An amendment to the Morphine Act was passed, prohibiting the sale by retail pharmacists of morphine in original packages or in pill or tablet form, except upon the prescription of a physician.

MISSOURI.—The existing Pharmacy Act was strengthened and improved by several amendments. One, of questionable value, however, permits the examining board to accept diplomas of approved schools of pharmacy in lieu of an examination. An important legal decision in the Missouri courts was to the effect that when a druggist prepares and sells a medicine for a purpose specified by the

consumer, he is not guilty of counter prescribing. An ordinance applicable to Kansas City only forbids entirely the prescribing of cocaine unmixed with other ingredients.

NEW YORK.—Much legislative activity has been exhibited in this State during the past winter, resulting eventually in the vetoing by the Governor of the bill which had been passed by the Legislature. The existing law, it is claimed, is defective, and the present method of electing members of the Pharmacy Board is unconstitutional. A law was passed affecting the sale of insecticides, providing for their proper labelling and for the issuing of permits for selling these products at wholesale. A municipal commission on explosives imposed restrictions upon New York City druggists, regarding the manufacture of compounds and preparations containing explosives or inflammable substances. An important decision in an adulteration case was handed down by a New York judge, who held that articles sold in grocery stores, not intended for medicinal purposes, need not conform to the standards laid down in the U. S. Pharmacopœia.

PENNSYLVANIA.—Much interest was shown during the past winter, during the biennial session of the State Legislature, in legislation pertaining to pharmacy. A new pharmacy law, permitting deviations from the standards of the U.S.P., where stated upon the label, in everything but such preparations of opium, iodine, camphor, peppermint, etc., as are used for household purposes, differs materially from the former Act, where no deviation was permitted under any circumstances.

A new Cocaine Act containing provisions much more stringent than those in the former law, especially as regards the registration of sales and quarterly reports to the pharmacy board by wholesale druggists, was passed by the Legislature.

VIRGINIA.—No new legislation was enacted, but an opinion was rendered by the Attorney-General, affirming the validity of the provision of the poison law requiring insecticides to be sold only in original packages.

WASHINGTON.—A narcotic law, forbidding the sale of cocaine, morphine, etc., to habitués, was recently placed upon the statute books. Provision is made for revocation of licenses of practicing pharmacists under certain conditions of violating the law. The registration of apprentices is made obligatory, and itinerant peddlers of medicines are required to take out licenses costing from \$5 to \$25 per month, according to the selling price of the remedy.

CANADA.—A new law was passed imposing restrictions upon manufacturers of nostrums, requiring a certificate of registration, and providing for a serial number and guaranty similar to the Federal law of the United States. A proprietary medicine is defined as any remedy or prescription put up for sale, which is not in any Pharmacopœia or accredited formulary, and which does not bear a published list of its medicinal ingredients.

Dr. Hamilton Wright presented a report on the work of the International Opium Congress, and said among other things as a result of his investigations of the opium traffic in the United States: that at least 20 per cent. of the Chinese in the United States are addicted to the opium habit in some form or other. The yearly importation of the drug amounts to 500,000 pounds. Only a small part of this is consumed by white people to satisfy a craving for the drug, so that it would seem the Mongolian population is mainly responsible for the spread of the drug habit throughout the world. Nevertheless, other Asiatics as well as Caucasians use the drug in quantities. The average importation of opium into this country for the last eight years has been 151,944 pounds annually.

Dr. Lyman F. Kebler presented a paper dealing with the "Necessity for a Federal Law Regulating the Traffic in Habit-forming Drugs."

Mr. Harry B. Mason presented a valuable report as chairman of the special committee to report on the advance of the temperance movement and its relation to the druggists of the United States.

The following officers were elected for the ensuing year: Chairman, Prof. Charles H. LaWall; Secretary, Prof. Charles W. Johnson; Associates, Philip Asher, Cornelius Osseward, and Howard A. Peairs.

The following are abstracts of some of the papers presented:

SPANISH TRANSLATION OF THE U. S. PHARMACOPŒIA,

By Joseph P. Remington.

The Spanish translation of the United States Pharmacopœia has been issued more from an educational motive than any other, the Board of Trustees believing that the islands which fell into the possession of the United States after the last Spanish war should possess a means of using modern pharmaceutical preparations, and indeed prepare for themselves American pharmaceutical products if they so wished.

It is too early to report the measure of success which will attend the enterprise, but there seems to be no question, at the present time, from the orders which have been already received, that the Board of Trustees of the U. S. Pharmacopœia Convention will be able to pay all expenses, thus carrying out the original intention. It is not usual for Pharmacopœias to be published in a foreign language, but the peculiar circumstances arising from the Spanish war furnished the *raison d'être* for this somewhat unusual publication.

THE USE AND ABUSE OF THE GUARANTY CLAUSE OF THE FOOD AND DRUGS ACT.

By George M. Beringer.

A critical examination of the guaranty clause in which the author says:

A strict construction of the wording of Section 9, I believe, would require for the protection of the dealer a guaranty "*signed* by the wholesaler, jobber, or manufacturer" with each sale. Again, it must be direct as well as personal as the Act specifies that "said guaranty, to afford protection, should contain the name and address of the party or parties *making* the *sale* of such articles to *such dealer*." This language of the law recognizes no intermediary in the sale. Under the primeval conditions of barter and sale such a system of direct and personal guarantys might have been possible, but under modern conditions of trade and commerce it is impracticable. The wording of Section 9 of the Act is certainly open to criticism.

Furthermore he calls attention to the fact that: The Act provides that the guaranty must be made by a "party residing in the United States," so that no protection, in this sense, is afforded or can be expected from foreign manufacturers or producers or dealers. It is to be noted that the various State Acts have copied into them bodily the idea of a direct and personal guaranty and incorporated the idea of residence of the guarantor. The food and drugs laws of Arkansas, Colorado, Florida, Georgia, Massachusetts, North Carolina, and the State of Washington all have limited the protection of a guaranty to "a guaranty *signed* by wholesaler, jobber, or manufacturer *residing* in the State" and quite a number of the State laws have even gone to the limit of requiring that the guaranty on the label "must *specify their State Act*."

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

Mr. Leonard A. Seltzer, Chairman of the Section, in his address said: Perhaps one of the most important works fostered by the association this year is the revision of the Formulary. There seems to be a feeling that since the Formulary has become a national standard it should confine itself as much as possible to strictly medicinal preparations, leaving all minor formulas, as those of toilet preparations and other recipes, to pharmacists themselves.

There are some important problems still unsolved, as, for instance, the standardization of coloring substances. It is to be hoped that some one in the association, even if not a member of the committee, will be able to suggest a plan for solving this difficulty.

Work has also been done on making pleasant flavoring elixirs, and this suggests the fact that although many of the operations which, owing to the advances in scientific work along pharmaceutical lines, are not feasible for the dispensing pharmacist to attempt, he can still practice his *art*. In fact it is rather by excelling in his art than in any other way that the dispensing pharmacist can distinguish himself in the eyes of the laity as well as the profession. The pendulum is swinging back almost to where it was of old when the art was the most important part of pharmaceutical knowledge and practice.

Along the line of the investigation by pharmacists of color standards and flavor elixirs should go the combinations of odors. In how many shops is otto of rose almost the only available means of scenting such preparations as need it? To what extent is the knowledge of combining and producing odors common among pharmacists? This knowledge is valuable and within the reach of all, and work along this line is suggested.

The following officers were elected: Chairman, Otto Raubenheimer; Secretary, Erich H. Ladish; Associate, W. R. White.

The following are abstracts of some of the papers which were presented:

SOME FURTHER WORK ON FLUIDGLYCERATES.

By George M. Beringer.

The author submitted new formulæ for fluidglycerates of nuxvomica, red rose, and sanguinaria, and gave the results of his experiments upon a few fluidglycerates in which an alkali is used to assist the extraction.

DETANNATING WINE.

By Wilbur L. Scoville.

The following process is recommended: To one gallon of white wine add five fluidounces of (skimmed) milk, shake well, and set aside for forty-eight hours, shaking once or twice during that time. Then filter off a small sample, mix it with an equal volume of 2 per cent. strychnine sulphate solution, and set in an ice-chest for twelve to twenty-four hours. If at the end of that time no precipitate is apparent in the test, the rest of the wine is ready for filtration. If a precipitate appears in the test, more milk must be added and the maceration repeated, usually one or two more ounces of milk being sufficient.

For red wines use eight ounces of milk per gallon at the start, and test in the same way.

The wines so treated must contain not less than 18 per cent. of alcohol after filtering, and must be immediately fortified if below this strength.

The flavor and aroma of the wines are not materially affected, but the color is made lighter. Darkening will occur if ferric chloride be added, but much less deeply than in the untreated wine.

SUPPOSITORY BASE.

By H. A. B. Dunning.

The author recommends that for use in summer time, and when a large percentage of solid extracts are dispensed, a base composed of cocoa butter containing castor oil 10 per cent., white wax $2\frac{1}{2}$ per cent., is more satisfactory than cocoa butter. This mixture melts at body temperature and spreads quite freely.

The examination of some suppositories in the following combinations, cocoa butter, adrenalin, water; cocoa butter, hydrochloric acid diluted, water; cocoa butter, adrenalin, hydrochloric acid dilute and water, seems to show that the addition of 1-24 grain adrenalin to 30. grain suppository increases the resistance of cocoa butter to heat, and prevents the suppository melting freely at body temperature.

BEEF, WINE, AND IRON.

By L. E. Sayre.

An examination of twenty-five commercial samples showed considerable variation in composition. A variation within certain limits is in part due to the fact that the ingredients in the formula are without any standards.

FOUR MONTHS' DETAIL WORK AMONG PHYSICIANS.

By C. Osseward.

The author gives the outline of a personal campaign which he conducted, detailing the physicians with certain goods and giving one month to each subject.

Among the other papers which were presented may be mentioned: "Abstracts from the Squibb Laboratory Note-Books," by John A. Dunn; "Improved and Original Formulas," by Abraham Weinstein; "Glyceritum Iodi," by F. M. Apple; "A Brief Sketch of the Perfume Industry," by P. Henry Utech; "Suggestions for the Improvement of the National Formulary," by Otto E. Binder; "The National Formulary Elixirs," by Wm Mittelbach; "Tincture Delphinii Consolidæ," by C. P. Wimmer; "A Point in Professional Courtesy," by Leonard A. Seltzer; and "Pepsin and Pancreatin: Their Chemistry and Uses," by B. Sacks.

COMMERCIAL SECTION.

Mr. Harry B. Mason, Chairman of the Section, delivered his address at the opening meeting on Tuesday afternoon. A number of papers were presented. Of these we may mention those by C. Osseward and Jacob Diner on "How Best to Increase One's Prescription Business." It would be well if these papers could be in the hands of every retail pharmacist in the United States, as they are constructive and full of practical suggestions.

The Chairman of the Section for next year is E. H. Ladish.

HISTORICAL SECTION.

The Chairman, Dr. John B. Bond, made a few remarks when he called upon the Historian, Prof. Edward Kremers, who presented an interesting report of the year's work and urged the establishment of a library through the exchanges received by the association for its proceedings.

M. I. Wilbert read a paper on "A Contribution to the History of 'Pinkroot.'"

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

MEETING HELD AT BEDFORD SPRINGS, JUNE, 1909.

The thirty-second annual meeting of the Pennsylvania Pharmaceutical Association was held at Bedford Springs Hotel on Tuesday, Wednesday, and Thursday, June 22, 23, and 24, with a large number of members and guests in attendance, and with results which show that this association is well in the lead among the State associations in the character of the work accomplished.

The meeting place was one which had been visited several times before, and is well adapted for the purpose, as the members were all housed under one roof and could attend the sessions and social functions without any inconvenience. The preliminary arrangements had been so well taken care of by President Walton and Secretary Heffner that a more business-like procedure than ever before was made possible. This was largely due to the fact that printed programs were issued, giving an outline of the business to be transacted at each session and the order in which it would be taken up. This, and the fact that an additional session had been provided by utilizing Tuesday morning for reading reports and receiving delegates, made it possible to do all the work in three days without any undue haste or crowding.

The first session on Tuesday morning was opened by President Walton, with the other officers in their respective positions and a large number of members in attendance. This session was devoted almost entirely to the reading of reports. Those of the treasurer, secretary, and executive committee showed the affairs of the association to be in a very prosperous condition, and that it has grown both in size and importance. Delegates from other associations were accorded the privilege at this time. Reports were then received from delegates to other State associations and several committee reports were given consideration.

At the second session, on Tuesday afternoon, the following committees were appointed by President Walton:

On Nominations: R. H. Lackey, chairman; B. E. Pritchard, Wm. E. Lee, C. H. Marcy, and G. A. Gorgas.

Auditing Committee: T. Henry Merritt, chairman; A. B. Heckerman, F. J. Althouse.

On Patents and Trademarks: W. L. Cliffe, chairman; C. E. Vanderkleed, J. C. Wallace, J. W. England and J. R. Thompson.

Special committee to prepare resolutions upon the deaths of J. H. Redsecker of Lebanon and J. H. Stein of Reading: Joseph P. Remington, chairman; M. N. Kline and J. L. Lemberger.

Some additional reports from delegates and reports of committees were then received, after which the session adjourned to reconvene at the formal opening at 8 P.M. Tuesday. At this evening session, the address of welcome was delivered by Hon. John M. Reynolds, Congressman from Pennsylvania, who talked very interestingly, his speech being largely historical in its nature, concerning the country around Bedford, which was on Braddock's and Washington's line of march from Virginia to Fort Pitt, now Pittsburg. The speaker was also very emphatic in upholding the principles of pure food and drug legislation, of which he has been one of the steadfast supporters. The responses to this address were made for the members and ladies, respectively, by Col. Henry C. Demming of Harrisburg and Mrs. Wm. E. Lee of Philadelphia.

President Walton then called Vice-President Leedom to the chair while he read his annual address. In this he made a number of recommendations, among the more important of which were the following:

That a committee of five be appointed to draft a proposed law providing for the restriction and regulation of the sale of opium, its preparations, and derivatives in Pennsylvania; that the by-laws be amended so as to include the President as an ex-officio member of the Committee on Legislation; that suitable provision be made for the finances of the Entertainment Committee so as to abolish the present practice of soliciting aid from the wholesale trade; that a special committee of five members on U.S.P. and N.F. propaganda be appointed, three of whom shall be delegates to the State Medical Society, and that it shall be the duty of this committee, with the co-operation of local members, when necessary, to prepare an exhibit and suitable literature for furthering this important work, funds not to exceed two hundred dollars to be placed at the disposal of the committee from the treasury of the association. It also contained recommendations concerning the relations between the association and the recently formed Travelling Men's Auxiliary and an increase in the salaries of the treasurer and secretary of the association. It might be said in passing, that practically every one of the foregoing recommendations was adopted later by the association after hearing the report of the Committee on President's Address.

The fourth session on Wednesday morning was taken up with the reports of some of the more important committees, including those on Trade Interests, Adulteration, and Legislation. These reports were productive of considerable discussion, and several papers pertaining particularly to legislative subjects were read and discussed at this time. At the fifth session on Wednesday afternoon, the first order of business was the reading of the report of the Committee on Nominations, in which the following names were proposed: President, John C. Wallace, Newcastle; First Vice-President, Theodore Campbell, Philadelphia; Second Vice-President, Charles R. Rhoads, Hyndman; Secretary, Edgar F. Heffner, Lock Haven; Treasurer, Joseph L. Lemberger, Lebanon; Executive Committee, Louis Saalbach, Pittsburg, chairman; members, Louis Frank, Wilkes-Barre, and W. H. Skinner, Chambersburg. There being no other nominations, these officers were unanimously elected by the Secretary being directed to cast an affirmative ballot.

A supplementary report of the Nominating Committee was also presented, in which the following were nominated as delegates to the U. S. Pharmacopœial Convention in 1910: L. L. Walton, chairman; Mahlon N. Kline and W. L. Cliffe, with D. J. Thomas of Scranton and C. B. Lowe of Philadelphia as alternates. These were unanimously elected in the same way as the officers of the association.

A number of original papers were then read upon various scientific and commercial topics, eliciting, in more than a few instances, valuable discussions. At this session the committee appointed by the President to draft resolutions on the deaths of J. H. Redsecker and J. H. Stein reported, and a short period was devoted to this subject in order to give those members who were well acquainted with the deceased an opportunity of saying a few words.

The report of the Committee on Time and Place of Meeting, presenting several propositions to the members, was discussed, and a ballot was taken which resulted in an overwhelming majority in favor of Buena Vista Springs Hotel for the meeting in 1910. The rest of the session was devoted to the reading and discussion of original papers, which was continued in the seventh session on Thursday afternoon, the only other business considered at this session being the report of the Auditing Committee, the adoption of resolutions commending Dr. Wiley, and the endorsing of his work under the Food and Drugs Act.

The final session, which was held on Thursday evening, was devoted almost entirely to the installation exercises, when the newly elected officers were ushered into their respective positions. Mr. Frank W. Smith, President of the Travelling Men's Auxiliary, made a short address upon this occasion and Dr. C. B. Lowe gave a short talk on reminiscences of amusing occurrences in his professional experiences.

The prize of \$20 in gold offered for the most meritorious paper presented at the previous year's meeting was awarded at this session to Charles E. Vanderkleed and L. Henry Bernegau of Philadelphia, for their joint paper on "Tinctures from Standardized Drugs."

The entertainment features of the meeting were interesting and enjoyable, as usual, the masquerade ball on Wednesday evening being a great success.

The meeting as a whole will long be remembered as one which will count in the ultimate progress of pharmacy in Pennsylvania. The parliamentary ability of President Walton as a presiding officer, the humor of Colonel Demming, which sparkled on various occasions, and the general feeling of good fellowship and sociability which pervaded the entire meeting were memorable features of one of the most interesting and profitable gatherings which the Pennsylvania Pharmaceutical Association has ever held.

M. R. and C. H. LAWALL.

PHILADELPHIA COLLEGE OF PHARMACY.

SPECIAL MEETING, AUGUST 13, 1909.

A special meeting of the members of the college was called for Friday, August 13, at 2 P.M., at the request of Messrs. Beringer, Beetem and Weidemann to take action on the death of Thomas S. Wiegand, late Librarian, and member of the College since 1852, who died on Tuesday, August 10. Notwithstanding it was the height of the summer vacation period and some of the members were on the way to Los Angeles, Cal., to attend the meeting of the American Pharmaceutical Association, an unusually large number were present.

President Howard B. French presided. He stated the object of

the meeting and before calling on the members for remarks, read letters from John F. Hancock, of Baltimore, Richard M. Shoemaker and George D. Rosengarten, of Philadelphia, regretting their inability to be present to bear testimony to the character and services of Mr. Wiegand. Later, similar letters were received from Evan T. Ellis, Alfred Mellor, and H. K. Mulford.

The President said he had known Mr. Wiegand since 1860, and during that time had been in almost constant intercourse with him. During his apprenticeship he had the benefit of his helping hand and acquaintance. Mr. Wiegand had done much for pharmacy and for the College. On a visit to him a few days before his death he had found him physically very weak but his mental condition was good. His devotion to the interests and welfare of the College was unusual. When he left the service of Bullock and Crenshaw to come to the College it was to his financial disadvantage, but he wished to devote the remainder of his life in its service.

Samuel P. Sadtler said he had known Mr. Wiegand exclusively in connection with college work since 1878. Until recent years he was the chief business man of the College. He knew more students intimately probably than any other man ever connected with the College; he was brought in contact with them so often and so closely, and they looked to him to help them in their studies and in their troubles; he was esteemed by them to a remarkable degree, for they affectionately called him "Uncle Tommy." He had done more good to many men now in active pharmacy than anyone else. His services as Librarian were very efficient; he kept up most of the correspondence necessary in the Library until the infirmities of age lessened his usefulness. There would be a great feeling of regret throughout the alumni body as the news of his death became known to them.

C. B. Lowe said he had known Mr. Wiegand thirty or thirty-five years and that he was in close touch with him for a number of years. Besides he and the late Edward C. Jones there were probably no other men who had done more in sustaining the efforts of the Alumni Association in their labors on behalf of the College; they both had done much for its advancement and this devotion on the part of Mr. Wiegand extended even beyond the grave, as he had devised a life insurance policy for its benefit. Dr. Lowe said that it was a pleasure and advantage to hear Mr. Wiegand talk of the past and that it was a matter of great regret to him that he had

not availed himself more largely of such opportunities. His will be a pleasant memory, for his character was such that every student could revere. The speaker urged the completion of the Wiegand scholarship and felt that his death would give it an impetus as nothing else could.

Jacob S. Beeten said it would be a lasting pleasure to him to have known Mr. Wiegand. When, in 1876 he came to the city—a stranger—Mr. Wiegand took a personal interest in him and later association strengthened this interest, because it was the nature of the man to do kindly and helpful things to all with whom he came in contact.

George M. Beringer said he knew Mr. Wiegand from the first day that he entered the drug business—the acquaintance then made has continued since, only more warmly and with increased strength. The speaker said that he owed a great deal to Mr. Wiegand for his many instructive talks. The friendship formed in early life continued because he proved a staunch friend, no unkind word was ever uttered by him about anyone. He was always ready to sacrifice his own time for the benefit of others. As a further mark of the respect which he said all the members had for him Mr. Beringer made a motion that a committee of three be appointed to draft suitable resolutions to his memory. The President appointed George M. Beringer, C. B. Lowe, and Samuel P. Sadtler as the committee.

Henry Kraemer said that in looking over the Museum and Library previous to the meeting he saw some of the work of Mr. Wiegand. He said that Mr. Wiegand had connected us with the beginning of the College, he having been born in 1825; that he knew a larger number of the alumni of the College than any other man. Referring to his earlier work he said that before Mr. Wiegand was twenty-one years old he wrote a thesis on *Aristolochia reticulata* which in large part led to the inclusion of this species in the definition of the drug *Serpentaria* in the U. S. Pharmacopœia. He wrote many papers of practical interest to retail pharmacists, always having their work in mind. In his relations with the students he never seemed to see the oftentimes uncouth and awkward matriculate but the future graduate, and he treated every boy as one of promise and one in whom he felt a personal interest. Professor Kraemer said that Mr. Wiegand did not appear to find his true niche in life until he became actuary of the College, and that probably no other institution ever had his equal in that position. His was a wonderful

life—a life of service to others rather than a life of achievement or personal advancement. Kindness was one of his characteristic traits and largely controlled his dealings with those with whom he came in contact, and his services in behalf of the College, for the students and alumni will long endear his memory.

The Secretary said that when on a recent visit to Mr. Wiegand while he was quite ill and on what proved to be his death-bed, his thoughts were of the College, and he suggested how to add to the already valuable historical collection by trying to procure some of the utensils now obsolete—but much used in his early professional life and some of which had been of his invention and construction.

William E. Krewson said he had lost a friend of forty years, one whom he loved and respected, one who was always ready to give any information to the students who sought his advice and noted for his many other acts of kindly thoughtfulness. All that had been said by the other speakers he most cordially endorsed, and said that in the death of Mr. Wiegand he felt a great personal loss.

William E. Lee said when he came to the city, a stranger, no one could have given him more encouragement than Mr. Wiegand, and he could never forget the earnestness that characterized him in teaching the students and his efforts to help them by advice and suggestion in ways that would be to their benefit.

Charles H. LaWall said as one of the younger members of the College he felt it incumbent upon him to say a few words. He said that twenty years ago in coming to Philadelphia—a stranger—he needed much advice regarding his future education and never failed to receive it from Mr. Wiegand, as it was habitual with him to go out of his way to assist the students. In the past few days while meeting with a large number of the students and graduates of the College in the central part of the State almost invariably the first question asked was, “How is Uncle Tommy?” thus showing how wide-spread and strong was the affection and esteem in which he was held.

Edwin M. Boring said the passing out of a life that had its beginning but a few years after the founding of the College carried the memory back all these years, and with the death of Mr. Wiegand there has passed from among us the last of that coterie of men like Procter, Maisch, Parrish, and others who labored so devotedly and unselfishly in maintaining the pharmaceutical meetings and along other lines had done so much to make the College what it now is.

President French said the remarks of Mr. Boring upon the death of Mr. Wiegand forcibly reminded him and saddened him to recall that of all the men connected with the College in an official capacity when he entered it as a student not one of them is with us to-day.

George M. Beringer stated that it was the wish of Mr. Wiegand's family that the College should appoint six members to act as honorary pall-bearers, to attend the funeral services and accompany the body to the place of burial at Beverly, N. J. The President appointed Messrs. Beringer, Baer, Beetem, Kraemer, Krewson, and Lowe. Later, it was ascertained that two of those selected as pall-bearers could not accompany the body to Beverly, when Messrs. Cook and Weidemann were substituted.

The funeral services were held in the chapel of the Arch Street Presbyterian Church on Saturday morning, August 14, the Rev. Harvey L. Wyatt of the Calvin Presbyterian Church officiating. Notwithstanding that some of the members of the College were on their way to attend the meeting of the American Pharmaceutical Association at Los Angeles, California, and it being in the mid-summer vacation period a large number of the pharmacists of the city were in attendance. The body was buried in the cemetery at Beverly, N. J., by the side of his wife and children.

C. A. WEIDEMANN, M.D.,
Recording Secretary.

FOOD AND DRUG COURSE LECTURE.

The fourth of the series of special lectures in the Food and Drug Course of the Philadelphia College of Pharmacy for 1908-1909 was given on Tuesday, March 9, at 3 P.M., in the Philadelphia Museums, Thirty-fourth Street below Spruce, by Dr. William P. Wilson, Director of the Museums. The address was on the subject, "A Few Interesting Foreign Drugs," and was illustrated with lantern slides and specimens.

Dr. Wilson gave a most vivid description of a *pharmacy in Canton, China*. The building was a large one opening on a narrow street. As one entered he passed into a large double room, and found on either side of a central aisle many seats arranged. At

the right and left of these seats there was a large table on which there was a large number of earthen vessels, each of which was filled with small sticks with flattened numbered ends, above their margins. Farther to the right and to the left of these tables, against the wall, from the floor to the ceiling, there was a set of shelves divided up into pockets eight or ten inches in width and height. In these pockets were all kinds of numbered packages with some strange Chinese superscription on them.

In passing along this street the strange and dejected appearance of the numerous people passing into this large building attracted his attention. He sought an opportunity and walked in with the rest, finding himself in a large room with furniture as described above. It was the time of the cholera and the black plague in Canton. Probably from forty to fifty people were seated in the wooden seats and chairs on each side of the central hallway. Each new person who entered as a patient went to the tables on one side or the other and selected from the vase-like dishes containing these long sticks with numbers on the ends one of the sticks and passed it over to a clerk-like officiating person on the same side of the central hallway. The patient then took a seat and waited.

The clerks in turn, for the patients, selected packages in these pockets or shelves on the side of the room, corresponding in number or description with the number or description on the label on the flattened part of the stick which had been drawn by the patient. This determined the kind of medicine that would cure this sick person. When the package was received the patient took it and left the room. It is probable the directions were on it.

A few *Chinese medicines* were shown of which the following may be mentioned:

Fungus grown on a coffin.

Cockroach tea.

Rhinoceros—shavings of horn being used.

Elephant—pulverized hide.

Scorpions. Prescription: three to be taken internally.

Toads' eyebrows which are said to prevent sneezing and thus clear the head.

Earthworms rolled in honey and swallowed alive are said to cure sick stomach.

Stag, "slaughtered with purity of purpose on a propitious day."

Pills from the whole body considered valuable remedies.

Ginseng is considered worth eight times its weight in silver because of its repairing qualities.

Tiger bones. An infusion it is said confers strength and agility.

Many bones are sold under the name of tiger bones that never belonged to that species of animal.

Heads and calves of legs of executed robbers are eaten by soldiers in order to absorb their strength and courage.

The hair of the dog that bites you is employed as a prescription for dog bite. The recipe is: "catch the dog and pull out a few of his hairs and work them into a paste with a little lime and oil; apply the paste to the wound."

Among other interesting foreign drugs the following were shown:

Dragons' bones; the fossil bones are pulverized and given for fevers, hemorrhage, etc.

Common worms, "earth dragon." These are boiled and the decoction taken in cases of gonorrhœa.

Snake's skin. This is boiled and taken for gonorrhœa.

Dried lizards. The powder is used for eye troubles, and in ointments for sores and ulcers.

Elephant skin, which is imported from Indo-China.

Bats' dung. The parts of insects picked from bats' dropping are decocted and taken internally to cure inflamed eyes.

Sparrows' dung. This is considered efficacious only when found in an upright position on the ground. This is decocted and taken to purify the blood. When made into poultices it is used for sores and wounds.

Dried toads. These are boiled in water or spirits and the decoction taken for elephantiasis, leprosy, etc. They are also used in ointments for sores and ulcers.

Leonurus sinensis. The twigs are used as a common tonic for venereal diseases and menstrual disorders.

Water plantain (*Alisma plantago*). The roots and rhizomes are employed as a common tonic and diuretic.

Berberis lycum. The bark is supposed to possess properties similar to quinine.

Urea. A boy's urine boiled and mixed with salt and calcium sulphate. This is taken internally for debility, and used externally as a lotion for weak eyes.

Hibiscus bark is employed for pulmonary complaints.

Cassia buds are used for fevers.

Pæonia albiflora. The roots are used for menstrual disorders.

Platycodon grandiflorum. The roots are employed as a common tonic and stomachic.

Dr. Wilson also showed a number of Andean species of cinchona; large bales of coca leaves; numerous rolls of cinnamon, and the various forms of preparations made from guarana. He stated that the seeds of the *Paullinia sorbilis* are dried, powdered, and mixed with water and moulded into a kind of dough and then made into various forms of animals and rolls. When used, these animals or rolls are grated into powder on the bones which form the roof of a large fish's mouth, and then heated in water.

In order to illustrate the primitive conditions under which the sugar industry is conducted in many of the smaller islands of the West Indies, Mr. Toothaker showed a number of lantern slides made from negatives taken on a recent trip. He described the manufacture of sugar by the open pan process as it is still practiced in Barbados. In this densely populated island where labor is comparatively cheap, modern sugar machinery is almost unknown. Hundreds of old fashioned windmills each with four great sails which turn the trade wind, grind the cane as it is fed by hand between little rollers. The stalks are brought in from the field on the heads of men, women, and children, and the crushing extracts only a small percentage of the juice. After drying in the sun, the crushed cane is burned under the large iron pans in which the juice is boiled down. The sugar obtained in this process is of low grade, brown in color, and full of molasses. The molasses, however, is much superior to that produced by more modern mills. Some of the planters finding that their low grade sugar is not so profitable as their molasses have ceased to make sugar, and boil the cane juice only enough to make a thick syrup. This finds a very ready sale in Canada, and is one of the important exports from Barbados. The wharves of Bridgetown present a scene of the greatest activity with crowds of native workmen loading lighters and sailing-ships with hogsheads of molasses and syrup, and bags of sugar.

Mr. George T. Hastings gave a short talk illustrated by lantern slides and described the modern sugar factories in the United States, West Indies, and Hawaii, where the largest possible amount

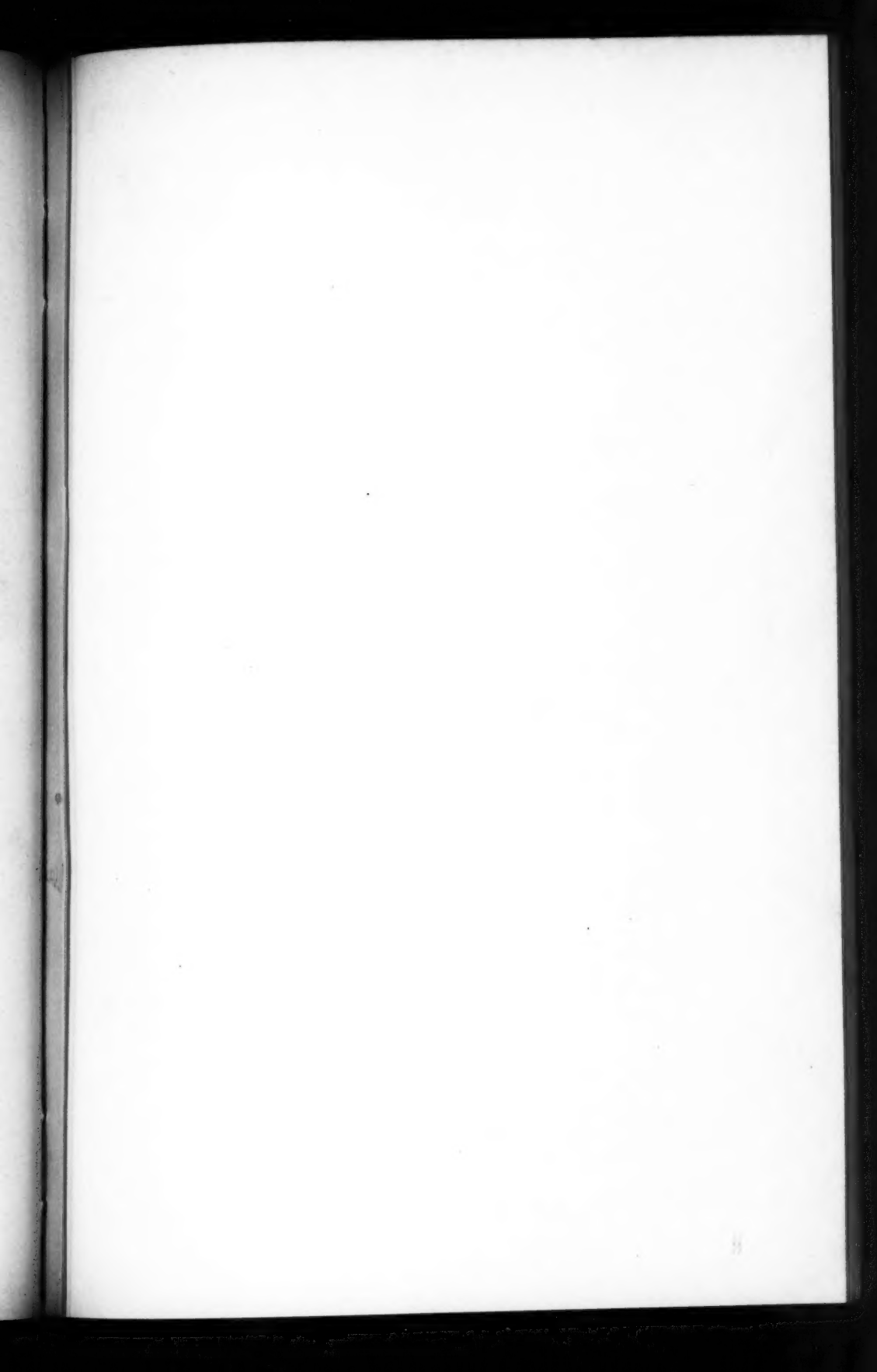
of juice is extracted from the cane, and where every atom of sugar is taken from the juice which can possibly be won by the most improved processes. He described, also, the beet sugar industry of the United States and showed in slides the entire story of beet sugar, from the harvesting of the crop to the turning out of the finished product. Mr. Hastings called attention to the very high purity of commercial sugar, and mentioned briefly the various substitutes and adulterants for sugar.

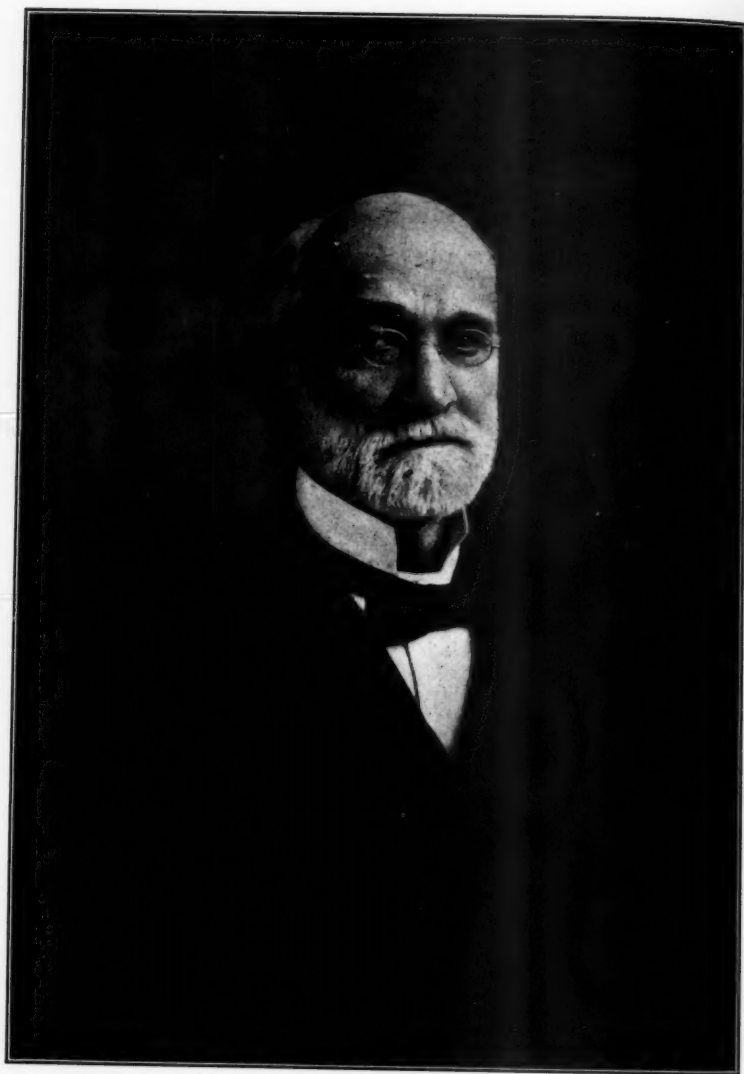
NOTES AND NEWS.

The PHARMAZEUTISCHE ZENTRALHALLE issued a jubilee number on July 1, 1909. This journal was founded fifty years ago by that *Altmeister der Pharmazie*, Dr. Hermann Hager, who is not only remembered for his editorial work but also for his works on practical pharmacy. It is cause for congratulation that this journal has continued throughout its fifty years of existence as a valuable weekly publication devoted to both the scientific and commercial interests of pharmacy.

The JUBILEE OF THE CHEMIST AND DRUGGIST has likewise been reached, the initial number appearing in September, 1859. A replica of the first number has been published and is distributed with the Jubilee number and summer issue, which contains some chapters on the history of our esteemed contemporary. The credit for establishing this periodical belongs principally to Mr. Septimus Vaughan Morgan, and was originally intended to be a monthly trade circular. While the *Chemist and Druggist* is unquestionably the most valuable pharmaceutical trade publication at the present time, it also contains much information of an applied scientific character, and is altogether a very valuable publication both for wholesale and retail druggists.

PRESERVING FRESH VEGETABLE DRUGS.—Professor Guignard of the Paris School of Pharmacy read a report at the last meeting of the French Academy of Medicine on researches made by Perrot and Goris on the sterilization of fresh medicinal plants so that they retain the color and taste of fresh material and may be employed in the making of vegetable extracts which are comparable in therapeutic action with those from fresh plants. The method of sterilization is based on the destruction of the ferments—*Chemist and Druggist*.





Wm. W. W. W.

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